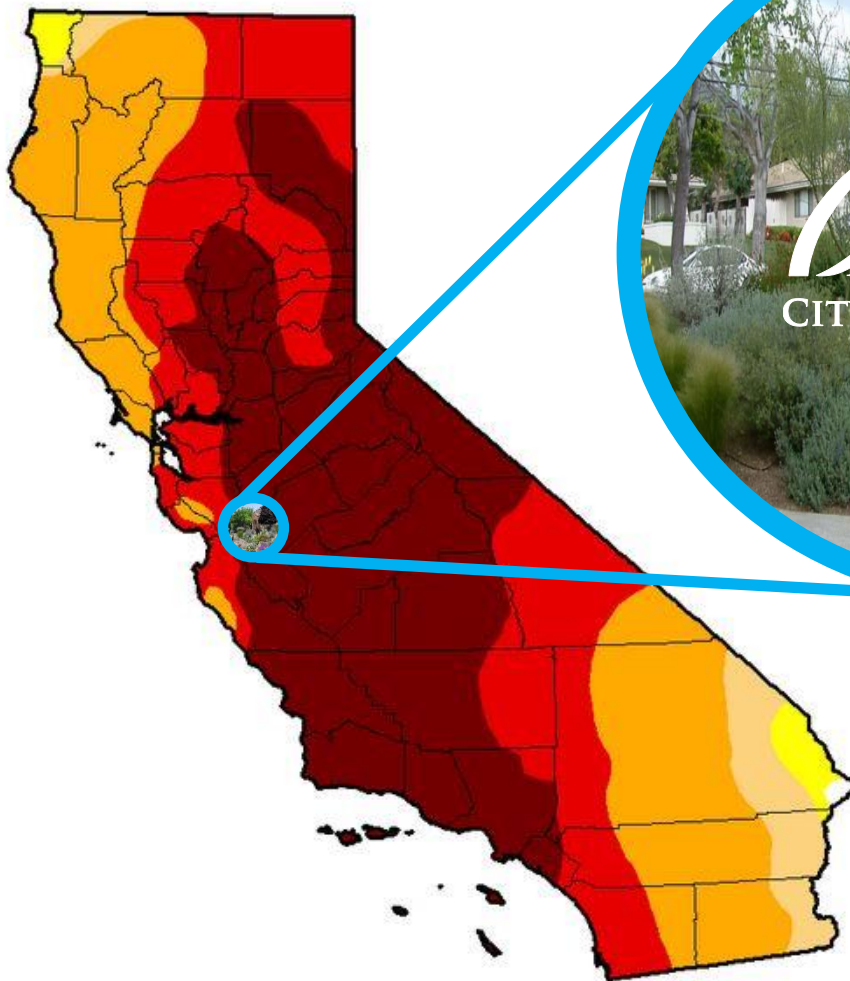


COMPREHENSIVE WATER REPORT



Purpose of Report

The City of Morgan Hill, along with the State of California, is entering the fourth year of drought conditions. 2014 has been recorded as the warmest and driest year on record for California. The City Council, at its goal-setting retreat in January 2015, adopted a drought response position that included the following goal and strategy:

Goal

The Morgan Hill Community will continue to be leaders in the state responding to the drought conditions and will support water rate increases to ensure system reliability.

Strategy

By March 2015, the Council will receive a comprehensive report that identifies short and long term strategies to address the environmental and financial impacts of drought conditions which may include new rate structure, Proposition 218 water rate election, public investment in recycled water, and other measures as necessary.

The purpose of the report will describe:

- Water Sources
- Water System
- Level of Service and Maintenance Standards
- Rate Structure
- Consumption
- Water Conservation
- Recycled Water
- Drought Response Activities
- Expanding, Preserving, and Conserving for Future Water Supplies
- Report Conclusions and Next Steps

Current Conditions

- California Snow Pack at 19%
- Imported Water Supplies Severely Constrained
- Groundwater Levels Falling Throughout California
- Water District Unable to Fully Recharge Morgan Hill Aquifer

Introduction

While there is no question that California is experiencing a drought that is causing significant concern that California's water resources are not sustainable, historical records throughout the 20th Century show that California is not likely to be consistently wet. As the population continues to grow, California's water system will be exposed with increasing frequency. This new reality will ultimately increase the cost of producing water.

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While there is no question that California is experiencing a drought that is causing significant concern that California's water resources are not sustainable, historical records throughout the 20th Century show that California is not likely to be consistently wet. As the population continues to grow, California's water system will be exposed with increasing frequency. This new reality will ultimately increase the cost of producing water.

Morgan Hill's water system is no exception. While the Santa Clara Valley Water District (District) actively recharges Morgan Hill's aquifers with imported water, their ability to do so is limited by the amount of imported water made available to the District.

In addition, the water infrastructure serving our State and the community of Morgan Hill

continues to age and require substantial investments in maintenance and replacement. The fragility of the California Delta has been well documented and will require billions of dollars in near-term investments in order to ensure that California's water system can continue to operate. Locally, the need to better seismically protect Anderson Dam will require hundreds of millions of dollars from Santa Clara County residents.

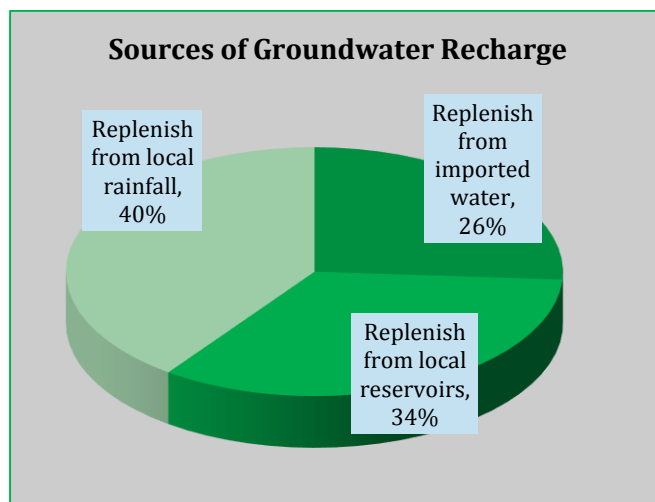
To address these challenges, both the District and the City continue to explore ways to expand the amount of water available, to reduce the amount of water consumed by enhancing efficiency and changing consumer behavior, and to make the investments needed to reliably maintain water infrastructure. These improvements, however, require additional investments and expenditures which ultimately increase the cost of water. In short, all of the lowest cost sources of water in California have already been developed and future sources of water will come at a higher cost.

Water Sources

The City of Morgan Hill receives its water from groundwater wells that feed an interconnected grid of pipelines to deliver water to homes and businesses in our community.

The City depends on regional, state and federal water agencies to supply additional water to replenish the groundwater. Imported water originates from natural runoff and releases from statewide reservoirs and is pumped out of the Sacramento San Joaquin Delta by the State Water Project (SWP) and the federal Central Valley Project (CVP). The District manages water recharge by releasing water captured and stored in local reservoirs, and water imported from the Delta, to creeks and recharge ponds.

Groundwater provides nearly half the water used in Santa Clara County and is the sole drinking water source in South County. The Water District manages the Santa Clara and Llagas Subbasins in Santa Clara County through statutory authority granted by the District Act. Among other responsibilities, the District's objectives and authority related to groundwater management are to recharge groundwater basins, conserve, manage, and store water for beneficial and useful purposes.



Overdrafting of the groundwater basin can have severe impacts to the municipal water supplies in the South County and could ultimately lead to land subsidence. To prevent this, the Water District takes imported water and recharges it into the groundwater basin by means of recharge basins strategically located in the South County. Because of the drought and subsequent lack of imported water availability, the recharge activities of the Water District have been significantly curtailed.

Where our water comes from:



1 WELL, THAT'S A DEEP SUBJECT

All water in Morgan Hill comes from groundwater wells that feed an interconnected grid of pipelines to deliver water to homes and businesses. The wells go 450 feet deep to reach underground aquifers. These wells and pipelines provide millions of gallons of water each day. Water is disinfected at the source to remove bacteria and is regularly monitored.

PUMP IT UP

Powerful electric pumps bring the water up from the wells and into "booster" stations that increase the pressure in the waterlines to move water from the valley floor up into the hills and elevated parts of the city. All the pumps are monitored by a sophisticated motor control center and carefully maintained to ensure a steady supply of water at all times.

3 SAVING UP FOR A NON-RAIN-RAIN DAY

Morgan Hill's water system includes large storage tanks located throughout the city. They hold millions of gallons and are always kept at 50% capacity or higher for emergency fire protection. The water stored in the tanks is fed back into the system so that wells and pumps don't have to run during peak hours, thus helping the city save on energy cost.

4 A REAL PRESSURE SITUATION

Underground pipes run in a complex grid throughout the city, connected by thousands of valves and pressures regulators. The water pressure in all these pipes must be monitored and carefully controlled. If the pressure gets too high, that can cause leaks and breakages. If the pressure drops too low, water can back flow into the system. Because of the many difference pressure zones, our knowledge and experienced crews are used to dealing with pressure they make sure the water keeps flowing at just the right rate.

WATER SYSTEM KEY FACTS:

No. of Water Wells	17	No. of Water "Booster" Stations	10
Depth of Wells	up to 530 ft	Capacity of Water Storage Tank	10 million gals
Production Capacity	15M gal/day	No. of Valves & Pressure Regulators	5,500
Miles of Water Pipeline	180	No. of Water Pressure Zones City-Wide	23
No. of Water Storage Tanks	12	No. of Emergency Back-up Generators	22

Water System

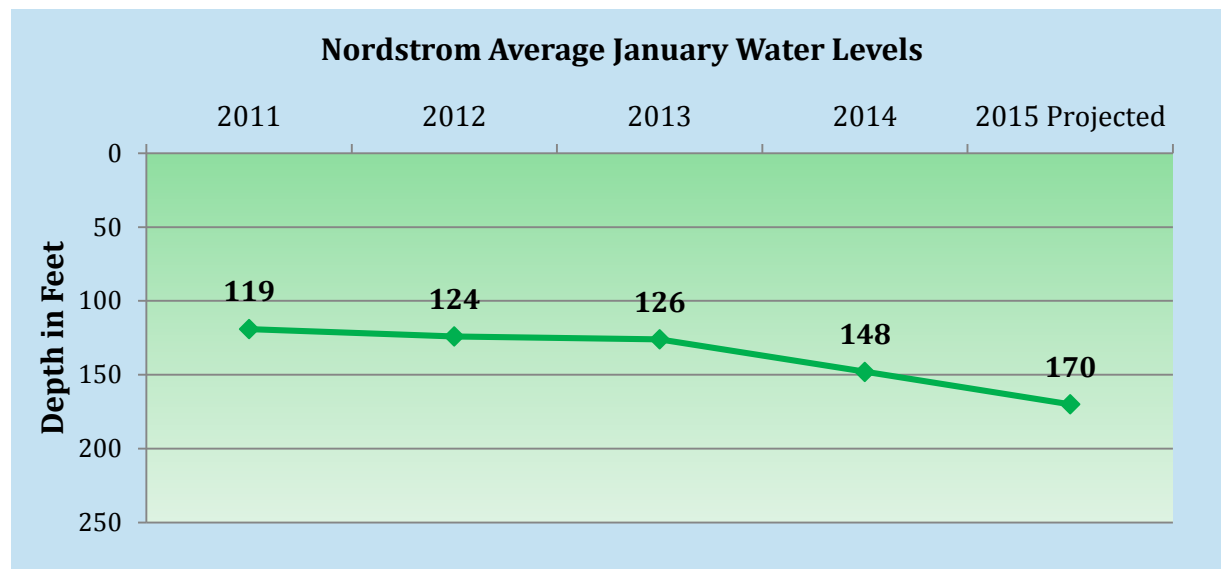
All water delivery systems are unique due to a variety of factors, including source of water (surface, underground, recycled, etc.), quality of water from source, topography, level of service and maintenance provided, and the age and condition of the infrastructure.

The City's water system consists of 17 wells, 10 booster stations, 12 storage tanks, 1,927 fire hydrants, and over 180 miles of water pipeline. Water wells in Morgan Hill range in depth from 220 feet to 530 feet deep. The amount of water flowing into the well determines the amount the City can pump out. As water levels drop, so does the amount of water that can effectively be extracted from the well.

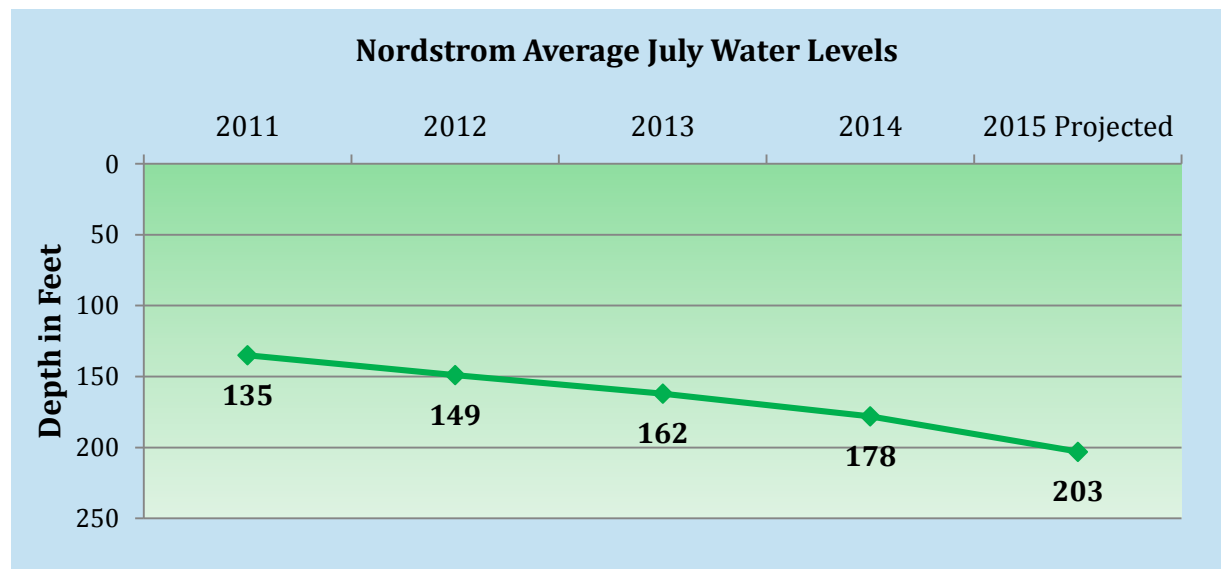
Well pumps operate every day. Powerful electric pumps bring the water up from the wells and into pumping stations that increase the pressure in the water lines to move water from the valley floor up into the hills and elevated parts of the city. All the pumps are monitored by a sophisticated motor control center and carefully maintained to ensure a steady supply of water at all times. The topography that enhances the quality of life in Morgan Hill

presents a unique challenge for the water system. The hills that provide our community with unique living and recreational spaces, require additional water system facilities to maintain the appropriate water pressure. There are 23 pressure zones in the water distribution system and most can be found in the surrounding hills.

As an example, one of seventeen groundwater wells, the Nordstrom Well, has seen its water level drop. The graph below shows the declining water level in Nordstrom Well and is also representative of all the City's well levels.



The trends we see develop in this graph clearly shows the decrease in Nordstrom Well's water level from January 2011 to 2014. January is typically the month well levels are at their highest. This graph shows a 24% drop in water level from 2011 to 2014. This drop in water level meant there was less water available in the well. What we see in January's graph can then be utilized to project July's water levels.



July well levels for 2015 are projected to drop even lower than July 2014 levels. This will be the lowest recorded water level for this well. We can only count on 66% of the water to be available for our use in July 2015 compared to July 2011. The rain we count on to recharge the groundwater and fill local reservoirs never came and the District's recharge program has been scaled back. The water levels in all of the City's wells are expected to drop in a similar manner.

Level of Service and Maintenance Standards

Across American cities, it is well documented and widely accepted that the infrastructure that supports our communities such as roadways, bridges, treatment plants, and underground facilities, are in need of attention and require investment. While we can see the effects of decaying bridges and pot-holed roadways, our water pipelines are hidden from view. With over a million feet of water main out of sight in Morgan Hill, an asset management program helps City engineers systematically evaluate the pipeline conditions and guides them in determining where to invest the community's infrastructure replacement dollars. A commitment by the City Council to fund the true cost of water service sustains a level of funding for the capital improvement program that contributes to maintaining the high level of the City's water system reliability.

In 2011, the City Council made a commitment to maintain a certain level of service to the community when the Council adopted a five year water rate structure. The Council continued to support the decision to maintain this level of reliability in the City's water system when the Council set the 2015 City Council Goals and Priorities. The maintenance standards that sustain the water enterprises to meet Council's expectations are found in part in the utilities performance measures.

The level of effort needed to maintain the City's water system can be bench-marked using Best Management Practices (BMP). BMPs are developed by organizations that include the International Water Agency, Water Resource Foundation, and the American Water Works Association. Using these guidelines and combining them with the institutional knowledge developed by the City's water operational staff over years of operating and maintaining the City's water systems, helps guide the process for setting effective performance measure.

Currently, unfilled positions have temporarily reduced preventive maintenance service. As a result, the large water meter program has been suspended, and the valve replacement program and dead-end flushing program have been reduced by 90% and 95% respectively, among other reductions. The Water Division's primary focus and order of priorities haven't changed with the temporary staffing reductions. Emergency response activities such as water leaks and repairs must be first on the priority list, followed by customer service issues, and finally programmed maintenance activities. These short-term savings are not believed to be sustainable if the City desires to provide the expected level of service into the future and ensure that system reliability is maintained.

Rate Structure

In Morgan Hill, significant resources are needed to operate the City's water enterprise. The associated expenses are paid for by the revenues generated from customer charges. The rates pay for the services we provide to deliver high quality water to our community. This section will explain how the water rates were developed and adopted.

For any water utility, determining your rate structure is a complex process. Rates should reflect community priorities and Council policies. In doing so, it is important to understand how a selected rate structure supports financial and environmental sustainability.

From a water industry perspective there are many different rate structures that are utilized. These include:

- Uniform Rates (constant cost per unit)
- Declining Block Rates (unit price declines as consumption increases)
- Increasing Block Rates (unit price increases as consumption increases)
- Seasonal Rates (unit price varies by season)

Council Adopted Water Rates

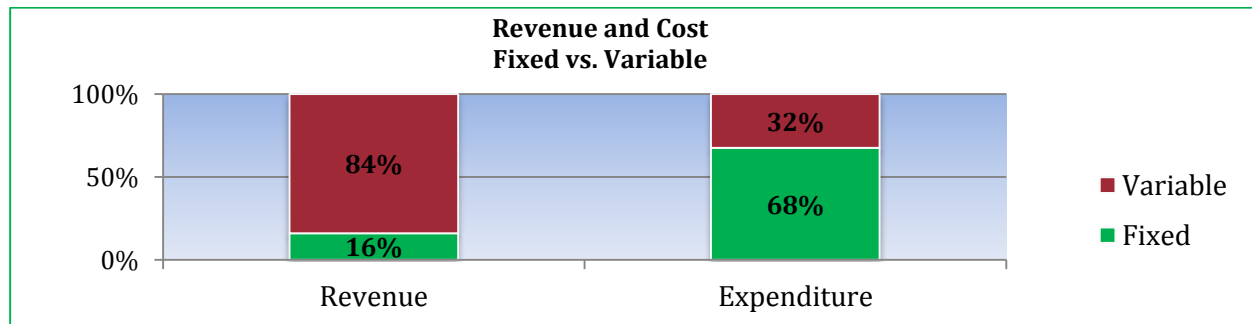
On November 16, 2011, the City Council approved a resolution revising the monthly water system fees for the next five years beginning in January 2012. The Council approved water rate increases of 16.50% in January 2012, and an increase of 6.25% annually from January 2013 through January 2016.

How Water Rates Were Set

The current water rates are based on the 2011 water rate study from Bartle Wells Associates (BWA). The rate study demonstrated that the rates the City Council adopted are rationally related to the reasonable cost of providing water services, and the rates proportionally distribute the costs to different classes of users (i.e., residential, business, commercial, industrial). Additionally, Water Code sections 372 and 375 authorize public utilities to adopt water conservation programs for its customers and permits the adoption of rate structure design and allocation-based conservation pricing to promote conservation.

The Council adopted a "conservation tier structure" (Increasing Block Rates) in residential water accounts so that the majority of indoor household water use is captured in the lowest rate tier to accommodate nondiscretionary use that represents the bare minimum that households need to function, such as water used to wash dishes, shower, and do laundry. The second and third tiers capture water use for discretionary purposes, such as landscape irrigation and washing cars.

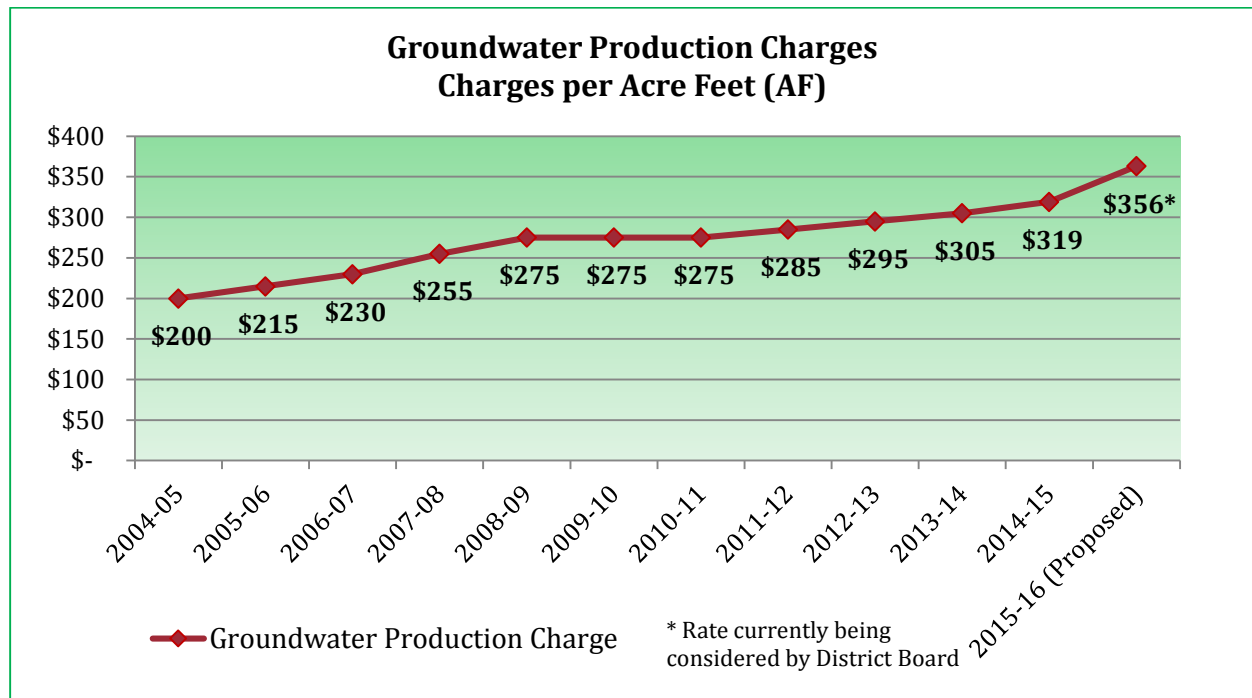
The current rate was designed so that approximately 16% of the water operation revenue is fixed and collected through meter charges. The remaining 84% is variable revenue derived from water sales (commodity) charges.



Conversely, the majority of the water operation costs for delivering high quality drinking water in the City are fixed costs, which only vary slightly based on actual water consumption. Variable costs fluctuate on the amount of water used and they include the groundwater production charge paid to the Santa Clara Valley Water District (District), electricity used to pump water from wells, and chemical costs used to treat water at the source.

	% of Total Cost
Fixed Cost:	
Personnel	23.8%
Supplies	10.8%
Capital (Meters, Machinery, Equipment)	7.3%
Debt Service	14.9%
Internal Services (Building, Fleet, IT, General Administration)	5.3%
Transfers Out (to General Fund, Environmental Programs, General Plan Update)	5.5%
Total Fixed Cost	67.6%
Variable Cost:	
Electricity	7.2%
Groundwater Production	24.9%
Supplies (11% of total)	0.3%
Total Variable Cost	32.4%
Total Cost	100.0%

The groundwater production charge (water extraction fee) the City pays to the District is one of the largest expenses for the Water Operation Fund. As shown on the graph below, the charges have significantly increased over the last ten years.



In addition, Council adopted a financial policy that requires the Water Operation Fund to maintain a reasonable level of reserves equivalent to 25% of operational revenues necessary for the financial stability of the water system as well as for emergency operation and capital needs. Additionally, the covenants of the water debt service require that the annual net operating revenues (total revenues less operating expenses) must be sufficient to pay its debt service 1.25 times over.

Rate Assumptions

In the 2011 water rate study, BWA factored in the above Council's policy regarding reserve and the debt coverage ratio. Also factored into the rate development are the following assumptions in regards to projected water consumption, water operation revenues and expenditures.

The assumption was that water use per capita would remain at the calendar year 2010 levels and conservation measures would reduce per capita water use by 20% of 2010 level by 2020. Water sales would decrease 0.5% annually beginning in FY 2013-14. On the expense side, the annual cost escalators were built in the projected years, including 3% inflationary increases for salaries, benefits, supplies and services, contract services, and administration; 3.5% increase for groundwater production charge; 4% increase for electricity costs, and 5% increase for capital replacement.

Cash Flow Projection (Table from BWA 2011 Rate Study)

	Year End Projection FY 10-11	Projected FY 11-12	Projected FY 12-13	Projected FY 13-14	Projected FY 14-15	Projected FY 15-16
Rate Increases		16.50%	6.25%	6.25%	6.25%	6.25%
Beginning Fund Balance	3,109,000	2,428,000	1,651,000	1,624,000	1,921,000	1,475,000
Revenues	7,228,000	7,842,000	8,717,000	9,280,000	9,833,000	10,397,000
Expenditures	7,909,000	8,619,000	8,744,000	8,983,000	10,279,000	9,997,000
Ending Fund Balance	2,428,000	1,651,000	1,624,000	1,921,000	1,475,000	1,875,000

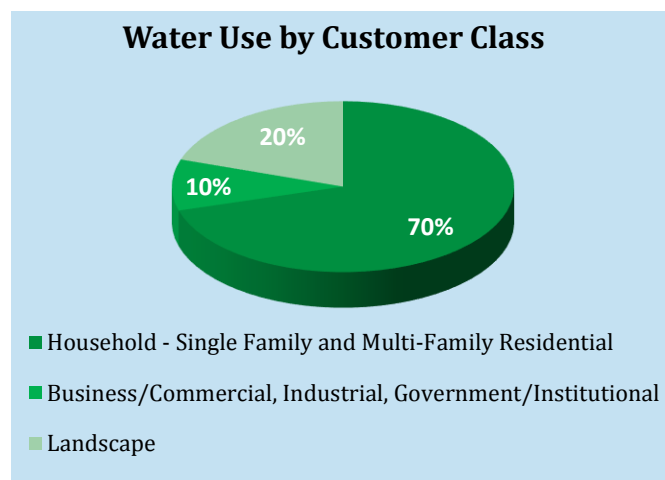
Moving Forward

As the City Council considers future water rates, it will be important to balance both environmental and financial sustainability. As part of this, establishing rates that encourage permanent water conservation while ensuring that sufficient fixed revenues are generated should be closely evaluated. For example, the City could consider increasing the fixed/base charge at a much greater percent of the total rate revenue. A higher percentage of fixed revenue could be considered appropriate because most of the operating expenses are fixed. Additionally, a larger fixed revenue source would ensure a more stable (or less volatile) cash flow during periods of significant consumption reduction.

Consumption

The City of Morgan Hill is committed to providing the community a safe and reliable supply of excellent quality drinking water.

The City provides water service to over 13,300 metered customers inside and outside the city limits. The majority (about 85%) of our customers are residential (single and multi-family). These residential households use approximately 70% of total water consumption. The remaining customers and usage are for businesses, commercial, industrial, government, institutional, fire sprinklers, and landscapes.

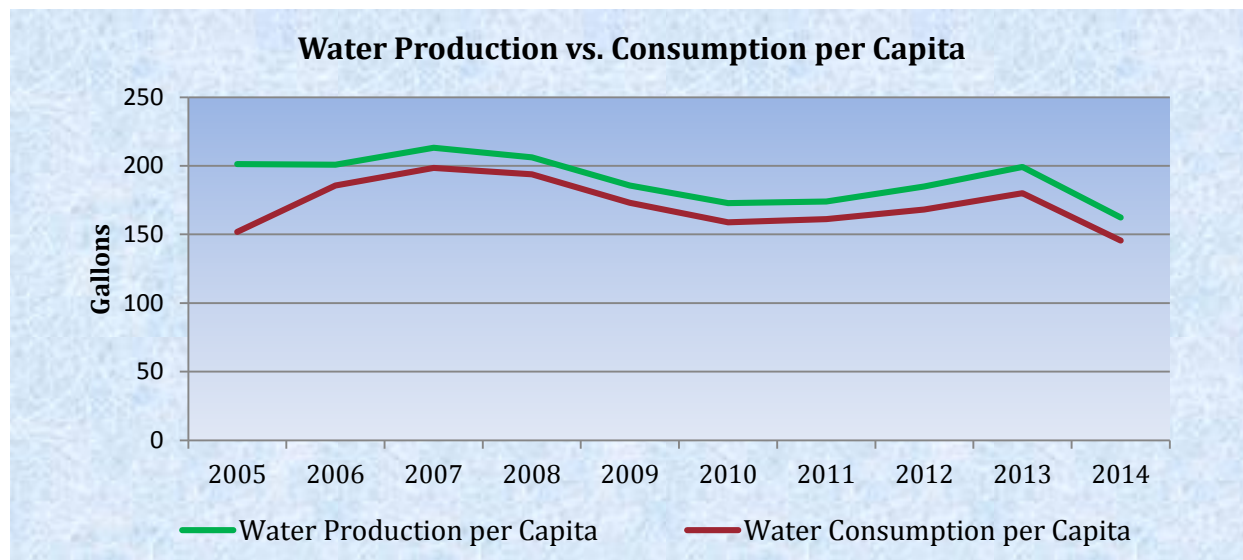


Water Production vs. Water Consumption

The City's water rates are based on water consumption, not water production, because consumption is measurable at each water customer's water meter. Water production and water consumption are two distinct measures of water that are related but not equal. The gap between measured water consumption and measured water production is recognized by the Federal Environmental Protection Agency (EPA) as unaccounted water or non-

revenue water (NRW). EPA has established an industry goal of 10% NRW. For Morgan Hill, the NRW ranges from 7% to 10% annually.

Non-revenue water includes losses resulting from source meter errors, customer meter under-registrations, accounting procedure or billing errors, system flushing activities, hydrant maintenance, illegal connections, malfunctioning distribution system controls, storage tank overflows, theft, and underground leaks. Addressing these contributing factors to minimize NRW is an on-going task for the City departments connected to the utility.

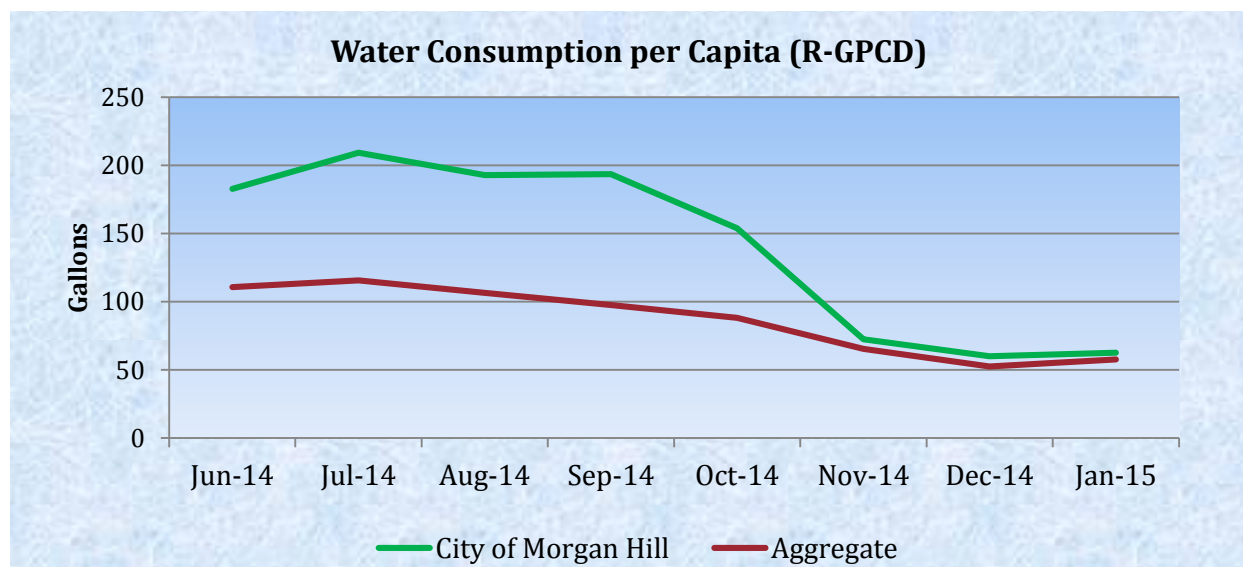


The City's water distribution system is made up of approximately 1,000,000 feet of underground pipelines ranging in age and condition. Finding water leaks can be difficult when leaking water does not surface. To overcome this condition, industries are developing affordable solutions. The City of Morgan Hill is an early adopter in the developing leak detection environment. The City is expanding its leak detection program portfolio to include emerging leak detection technologies such as fixed radio water distribution system monitoring sensors and smarter water meters. Distribution system monitoring sensors are currently installed in the Woodland Acres neighborhood. This is a good pilot program site because the hilly topography in the area creates higher water pressures, a variable that increases the chance of water leaks.

Searching for leaks in the water distribution system is not enough. The City's new smart meter program currently aids staff in finding water leaks on the customer's side of the water meter. Staff is able to detect leak patterns develop in days instead of weeks. Twenty-five percent (25%) of the water meters in the City are active in this program. In fiscal year 2016, the City anticipates adding 11% of the City's customers to the program. The City will be providing this set of customers with access to their water consumption information so they can monitor their use. Whether customers use mobile devices or personal computers, they will have the power to stay informed and take control of their water use.

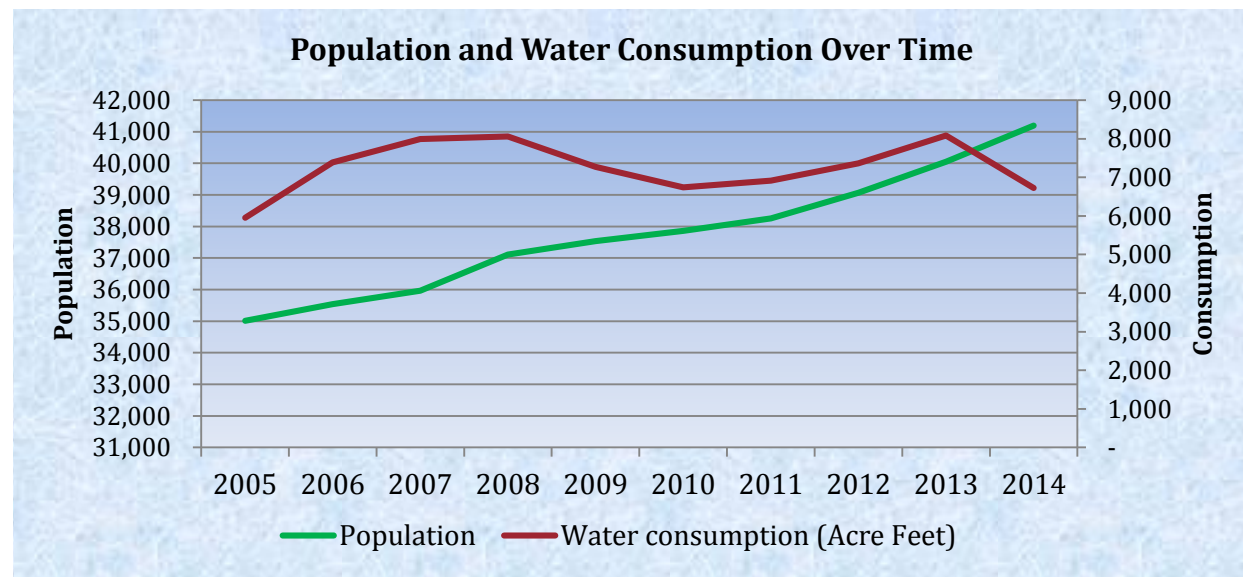
The following graph shows the consumption per capita (R-GPCD) for the City of Morgan Hill and the aggregate consumption. The aggregate R-GPCD is calculated by dividing each

retailer's residential monthly water usage by the total aggregate monthly population served, divided by the number of days in that month. The data is from the State Water Resource Control Board (SWRCB).



Population and Water Consumption Over Time

The graph below shows historical water consumption in comparison to population for Morgan Hill.



Water Conservation

The City of Morgan Hill has historically been a water conservation leader in Santa Clara County. In addition to actively participating in Santa Clara Valley Water District committees and activities, the City's water conservation program has engaged in the following activities:

- Developed and adopted model water waste ordinance
- Adopted ordinance requiring multifamily units to be individually metered
- Adopted landscape ordinance for new development and incorporated additional water conservation points into residential development control system
- Matched major district rebate programs for toilets and landscape upgrades
- Developed three conservation garden demonstration sites
- Distributed home water reports to engage customers
- Utilized Home Water Report - provides customers with their most recent 13-month view of their water consumption in comparison to the "efficient households" and the "average households."

When considered together with the City's tiered rate structure that encourages conservation, these activities have enabled the community to reduce the amount of water consumed daily per capita while simultaneously growing the local economy.

Recycled Water

What is recycled Water?

Recycled water is wastewater that is purified through multiple levels of treatment. Recycled water is clean, clear, and safe. This processed water is treated to strict standards set by the California Department of Health Services and is rigorously monitored by local, state and federal agencies to ensure it continuously meets those standards. Recycled water is safe for irrigation, industrial, and agricultural uses.



By the year 2020, the Santa Clara Valley Water District predicts that without additional water supplies, the South Bay could have severe water shortages during a drought. This issue threatens the South Bay's economic and environmental vitality, which depend on having enough water to meet demand. Conservation may not provide enough. Recycled water will become a significant component of the long term water supply sustainability.

During the past 75 years, water agencies have constructed recycling projects where treated wastewater is used for non-potable (non-drinking) purposes. More recently, water agencies have been using advanced treatment techniques such as microfiltration, reverse osmosis, and UV disinfection to produce highly-purified (near distilled quality) recycled water for a wider range of purposes including indirect potable re-use, in which highly purified recycled water is used to recharge underground aquifers. Currently, Morgan Hill's water enterprise does not utilize recycled water.

Benefits of recycled water

Water recycling has numerous benefits including:

- Conservation of drinking water supplies
- Less dependency on imported water
- Preservation of saltwater marshland habitats
- Development of a new water supply with a locally controlled reliable source
- Less water required to be pumped out of the ground
- Environmentally beneficial – same concept as recycling bottles, cans and paper
- Provides a drought-proof water supply
- Allows continued economic vitality for the region

Where does recycled water come from?

Recycled water comes from the treatment of wastewater. Wastewater is produced when we use sinks, showers, toilets, appliances and machinery in our homes, shops, offices and factories. Wastewater is piped through sanitary sewers to wastewater treatment plants where it progresses through three stages of treatment and disinfection.



The second stage of wastewater treatment is sufficient for landscape irrigation according to the California Department of Health Services. The Water District has strived to go above and beyond that standard in Santa Clara County. All recycled water in Santa Clara County meets or exceeds standards set by the State for the various uses of recycled water.

Bringing Recycled Water to Morgan Hill

The majority of recycled water comes from wastewater treatment plants. Geographically, Morgan Hill is far removed from this source of recycled water, both to the south and to the north. Morgan Hill's wastewater flows south to Gilroy where it is treated at the South County Regional Wastewater Authority (SCRWA) plant. While the SCRWA facility has established itself as the premier recycled water provider of all treatment plants in Santa Clara County based on percentage of water recycled, none of that recycled water has made it back to Morgan Hill historically because of the cost to do so. Treated water from the SCRWA plant would have to be pumped 10 - 12 miles uphill to reach the larger agricultural and recreation users in Morgan Hill. Given the large number of current and future agricultural, industrial, and recreation users of recycled water in south Gilroy, it has been much more cost effective to date to distribute that water in Gilroy, than to pump it north.

The Water District and the SCRWA collaborated on a recycled water master plan that was completed in 2004. That study found that while potential customers for recycled water could be identified in Morgan Hill, the capital costs of running a pipeline to Morgan Hill rendered the project economically unfeasible. In addition, the 2004 study took a cursory

look at the possibility of building a scalping plant to capture Morgan Hill wastewater flows east of Highway 101. In the study, the proposed scalping plant would be a mini-waste water treatment plant that would produce recycled water for Fry's Golf Course. It was found that the projected flows captured and treated would meet only a portion of the need at Fry's and, therefore, not worth further study.

Expansion of Recycled Water in Santa Clara County

To ensure an adequate and reliable supply of high-quality water, the Santa Clara Valley Water District has partnered with cities and water retailers in the county to develop recycled water supplies. About four percent of the county's total water use currently consists of recycled water, limited primarily to landscaping and industrial uses.

Recycled water use is expected to expand in the coming years. Towards this end, the District partnered with the City of San Jose to build an Silicon Valley Advanced Water Purification Center, an advanced water treatment facility, that will produce up to eight million gallons per day of highly purified recycled water. This highly purified water will be blended into existing recycled water provided by the neighboring Santa Clara/San Jose Water Pollution Control Plant, which will improve overall recycled water quality so that the water can be used for a wider variety of irrigation and industrial purposes.

Longer term, the District is investigating the possibility of using highly purified recycled water for replenishment of groundwater basins. Recharging ground water basins would represent a significant benefit for Morgan Hill since 100% of the City's water is pumped from the ground.

SCRWA/SCVWD Recycled Water Master Plan 2015

The South County Regional Wastewater Authority and the Santa Clara Valley Water District are again teaming up to update the 2004 master plan. The 2015 South County Recycled Water Master Plan Update is in the latter stages of development with a final report due in June of 2015. The purpose of the Master Plan Update is to:

- ✓ Identify potential new customers and recycled water needs
- ✓ Update regulatory and treatment requirements
- ✓ Update demand projections
- ✓ Develop and evaluate alternatives
- ✓ Evaluate recycled water options for **Morgan Hill**
- ✓ Prepare 10% designs of near term projects
- ✓ Identify outreach, environmental, and funding needs

This analysis and report will identify the potential for expanding recycled water from the treatment plant, matching the supply with the demand now and into the future, and to identify rough order of magnitude costs to deliver the water. Finding ways to bring recycled water to Morgan Hill is included in the Master Plan Update.

Morgan Hill Recycled Water Master Plan 2015

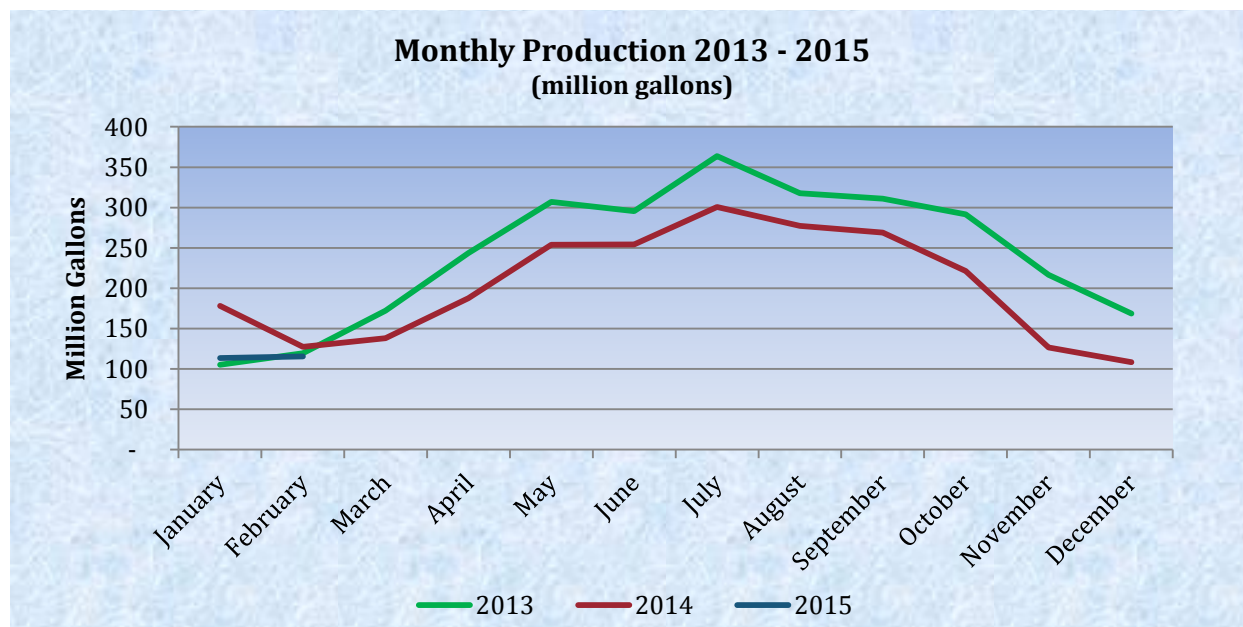
In Morgan Hill's FY 2014/15 Capital Improvements Program (CIP) budget, \$35,000 was appropriated for a recycling master plan. As conceived in the CIP, the Morgan Hill plan would "piggyback" on the work put into the larger SCRWA/SCVWD plan, and focus on

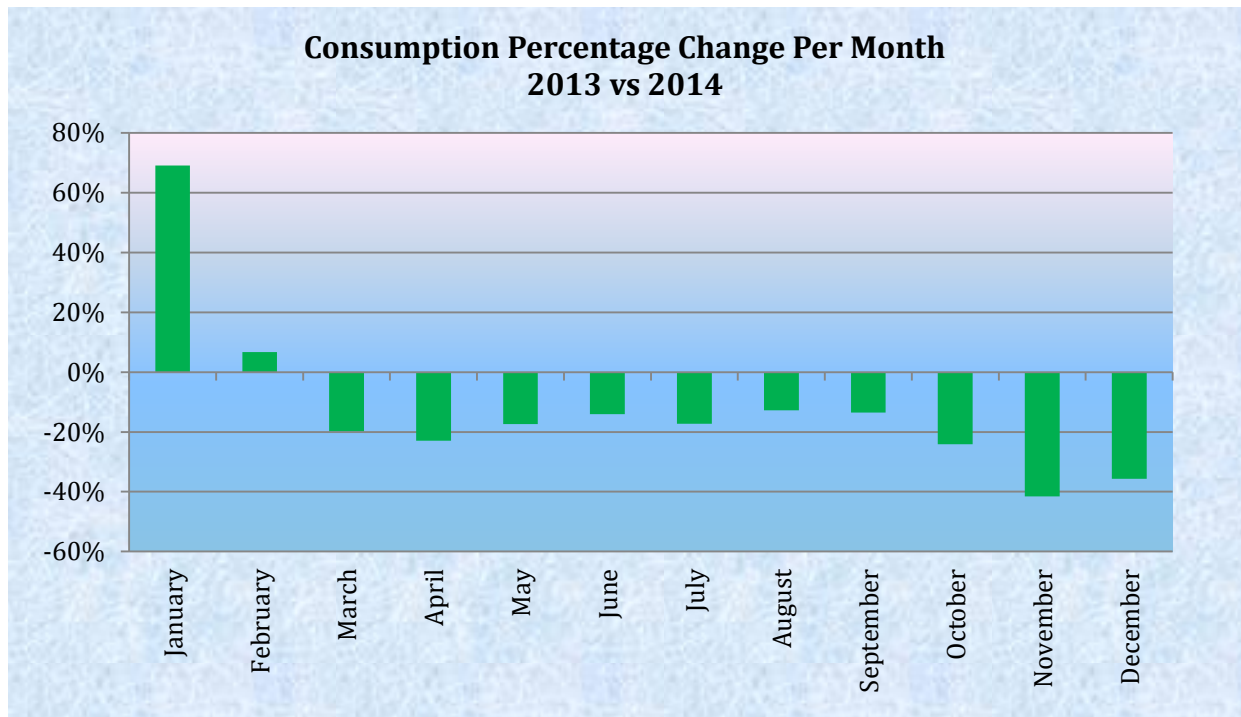
options available to Morgan Hill. Included in the Morgan Hill study will be recycled water options, the feasibility of a scalping plant, and greywater. The Morgan Hill study will provide more detail on distribution to potential customers, regulatory considerations, and costs to provide recycled water. It is estimated that the study will be complete four months after notice to proceed and will be presented to Council in late summer 2015.

2014 Drought and Response Activities

In response to calls from Governor Brown's Office and the District for a 20% reduction in water demand in early 2014, the City Council adopted a resolution on April 2, 2014 declaring a Level 1 Water Supply Shortage and directed staff to further engage customers using the WaterSmart program. Under a Level 1 Water Supply Shortage, landscape irrigation is limited to three days per week, leaks must be repaired quickly, and the washing down of hard or paved surfaces is prohibited except when necessary to alleviate safety or sanitary hazards.

With the City actively engaging the community in the Level 1 Shortage by sending out notices and using the full array of City communication resources, the community collectively reduced water demand by 550 million gallons and conserved over 20% between March and December 2014. The graph below depicts monthly water production since 2013. While the City led the District's service area in responding to the drought, the performance from month to month varied and it was clear that there were additional opportunities to further reduce water demand. While the first two months of 2015 showed a net increase in water production when compared to 2013, preliminary data from March indicates that the community is now conserving a substantial amount of water.

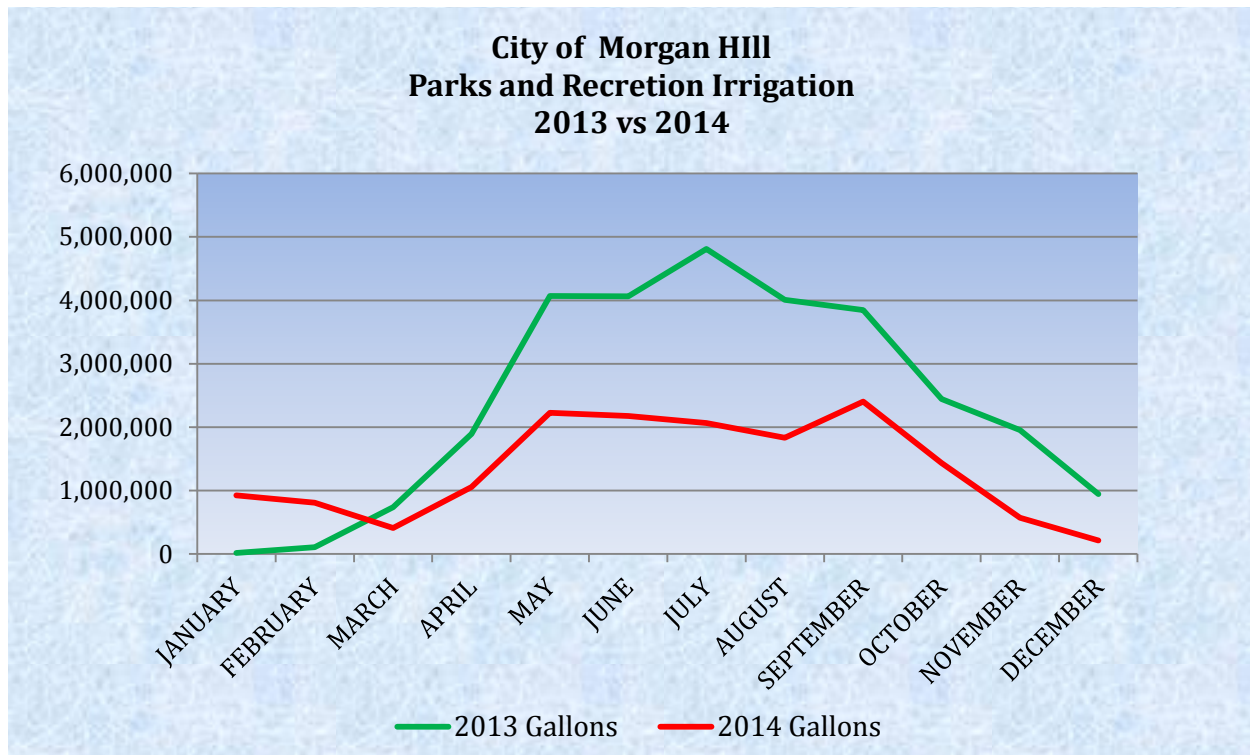




The City's 2014 drought response also incorporated many changes to City operations designed to conserve water including:

- Reducing the City's landscape irrigation use by 20%
- Escalating the City's response to water leaks
- Eliminating the use of water in fire drills and training
- Washing fire engines only as necessary
- Evaluating all plumbing fixtures to ensure they are low flow and replacing fixtures as needed at all fire stations
- Modifying fire hydrant testing and maintenance to reduce water consumption
- Adjusting water system flushing and meter testing schedules
- Reprogramming pool filtration equipment to eliminate unnecessary backwashing operations
- Increasing frequency of irrigation checks to reduce irrigation overspray and minimize water waste in the landscape

As anticipated, the City's reduction of landscape irrigation contributed significantly to the City's response and the City was able to substantially beat the 20% conservation target in this major area.



2015 Drought and Drought Response

With California experiencing another dry winter, 2015 will be the third year in a row of drought response activities. As of March 3, the California snow pack is at 19% of its normal amount and many of the State's reservoirs are well below 50% of their average level for this time of year. On March 17, the State Water Resources Control Board extended and expanded its emergency regulations addressing the drought which force water retailers to reduce water demand and restrict activities.

Water deliveries from the large Federal and State water projects are projected to be extremely low for the second year in a row. While many agricultural users are getting no water at all, the District is currently projected to get 25% of its allocation from the Federal project and 20% of its allocation from the State.

Since over one-half of the water used in Santa Clara County comes from imported sources, these significantly reduced commitments from the Federal and State projects severely constrain regional water supplies. These low commitments come on the heels of 2014 when similarly low commitments resulted in a districtwide drawdown of approximately 80,000 acre feet of groundwater. With fewer reserves "in the bank" for 2015, the District needs to further limit water use in order to protect the remaining groundwater supplies.

On March 24, the Santa Clara Valley Water District Board of Directors voted to request that all water retailers in the District reduce water demand to a level 30% below 2013 water demand. The City's Water Shortage Contingency Plan, as incorporated into the City's Adopted Urban Water Management Plan, includes a 30% reduction within the range of a Level 2 Water Supply Shortage. In addition to the City's permanent water use restrictions

and the measures the City took last year in response to the 20% (Level 1) call for demand reductions, the 30% response plan includes the following provisions:

Level 2 Water Use Reduction Measures

- Irrigation limited to two days per week
- Water leaks to be repaired within 48 hours
- Filling of ornamental lakes and ponds prohibited except as needed to maintain aquatic life
- Washing of cars prohibited except at commercial facilities recycling water
- Filling of residential pools prohibited

Permanent and Level 1 (20%) Water Use Reduction Measures Currently Instituted Which Would Remain in Place During a Level 2 Shortage

- Washing down of hard or paved surfaces prohibited except to alleviate safety or sanitary hazards
- Irrigating is prohibited between the hours of 9:00 a.m. and 5:00 p.m.
- Irrigation is limited to no more than fifteen 15 minutes per day per station
- Irrigation that causes or allows excessive water flow or runoff is prohibited
- Water fountains and other decorative water features must recirculate water
- Washing a vehicle requires the use of a hand-held bucket or a hand-held hose equipped with a positive self-closing water shut-off nozzle
- Drinking water must only be served upon request at local food establishments
- Motels must provide customers the option of not having towels and linen laundered daily.
- Installation of single pass cooling systems is prohibited
- Installation of nonrecirculating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems
- Food preparation establishments must use water conserving dish wash spray valves
- Commercial conveyor car wash systems must recycle water

Based on the City's experience in 2014, staff believes that a 30% reduction can be achieved by pursuing the following three strategies:

1. Declare a Level 2 Water Supply Shortage with a call for 30% reduction in water use as described in the City's Urban Water Management Plan;
2. Amend the City's water waste ordinance to include well water and to close loopholes in irrigation scheduling protocols; and
3. Significantly expand proactive water waste enforcement and customer engagement and education programs.

Each of these strategies will now be further described.

1. Declare Level 2 Water Supply Shortage - The Level 2 restrictions would further restrict water use beyond current levels. For the sake of balancing demands on the water system, staff recommends that the following schedule be considered:

- Odd addresses and accounts without addresses - Irrigation allowed on Monday & Thursday
- Even addresses - irrigation allowed on Tuesday and Friday

The switch to odd/even scheduling is recommended because having the community schedule all of its irrigation on only two days of the week would stress the City's ability to adequately supply water and may require the pumping of water during the afternoon peak period when electricity is most expensive. All public education materials developed would clearly explain the scheduling system and how each customer can comply. If adopted, City staff will work with other local retailers in an attempt to implement a common two day per week schedule in order to provide customers with clear messaging.

2. Amend City Water Waste Ordinance - The City's ordinance currently exempts water drawn from private wells from the City's restrictions. This is both counterproductive, since water drawn from private wells depletes the groundwater aquifer, and confusing since residents see irrigation from private wells occurring on nonirrigation days. Eliminating this exemption would further conserve groundwater and eliminate confusion. In addition, the City's ordinance contains language exempting irrigation controlled by "smart" weather-based controllers. This exemption is also confusing and should be eliminated. Staff recommends that amendments to the ordinance be brought back to the Council this spring after private well owners are notified of the proposed change and provided with an opportunity to participate in the process of developing amendments.
3. Significantly Expand Proactive Water Waste Enforcement and Engagement - As described above, the City's drought response activities have not resulted in fines to date as staff have focused on educating water customers. While overall compliance is reasonable, there is no question that a substantial amount of noncompliance remains. While systemwide winter water use, when irrigation is minimized, frequently ranges between 3 and 4 million gallons per day, summer usage was frequently between 6 and 7 million gallons on *nonirrigation* days last year. There was, therefore, about 3 million gallons of noncompliant water use each summer day last year.

Expanding, Preserving, and Conserving Future Water Supplies

As the City continues to grow, it will be necessary to consider a variety of approaches to meet the water needs of new homes and businesses. These approaches can generally be divided into the following three areas:

- Expanding Water Supplies
- Preserving Water Supplies
- Conserving Water Supplies

Expanding Water Supplies

The City's past approach to providing water for community growth has largely consisted of expanding the number of wells and storage reservoirs serving the community. While this remains a necessary strategy and the City's Water Master Plan includes plans for four additional wells, there is a limit as to how much water the aquifer serving the community can provide. In addition, there is also uncertainty as to how much water the District can provide for their managed groundwater recharge program. In the current drought, the District has continued to utilize the Madrone Channel for recharge, although it is unknown how active their groundwater recharge program will be in 2015. The dry winter has clearly limited the rate of unmanaged natural recharge.

While accepting direct deliveries of imported surface water would be technologically possible, doing so would require the construction and ongoing operation of a local water treatment facility. Most importantly, a surface water plant would be subject to the same interruptions in imported water that the other District facilities experience. Given the growing instability facing the State's water network, there would be no guarantees that a local plant could reliably deliver water to the community.

As previously discussed in this report, the City currently receives no recycled water and has no "purple pipe" infrastructure to deliver recycled water to local customers. Unlike imported water, recycled water is a highly reliable source of supply because it could be locally generated. The challenges of recycled water are finding the most appropriate uses for it, building the delivery infrastructure, and funding the recycled water production facility. As described earlier in this report, SCRWA is currently working on developing a study to evaluate opportunities to expand recycled water production and use. The City is currently commissioning a complementary study that will specifically identify opportunities for making recycled water available in Morgan Hill. This report is scheduled to be presented to the Council in late summer 2015.

Preserving Water Supplies

The District continues to aggressively act to secure additional imported water supplies through water purchases and transfers from other water entities. Gaining additional water via transfers would allow the District to preserve its active groundwater recharge system that supports Morgan Hill's aquifer. The primary mechanism the City has for supporting District efforts is by paying the District's groundwater fees.

The District has also supported the State's efforts to improve the condition of the Delta and to improve the reliability of the delivery systems that provide imported water to Santa Clara County. While the City's main mechanism of supporting the District's efforts remains via the payment of fees, it would also be possible to ensure that the City's legislative representatives at the State and Federal government are aware of the City's support if the Council desires.

A last approach to preserving water is to evaluate opportunities for maximizing the diversion of stormwater into groundwater infiltration basins. While stormwater pollution prevention regulations are forcing new developments to minimize storm flow, they do not require the retention of 100% of storm flow and are designed to protect creeks – not to maximize infiltration. In addition, diverting any of the water currently flowing through the

stormwater system of the community into infiltration basins is not a concept that has been extensively explored. It may be feasible to establish additional large stormwater retention or detention basins that would allow storm runoff to infiltrate into the groundwater instead of proceeding out to the ocean. It also may be possible to divert runoff into existing groundwater recharge facilities.

Conserving Water Supplies

While the City administers an active conservation program, as described above, there are numerous opportunities the City has to expand the current conservation program. These include:

- Adding outreach resources to boost participation in existing programs
- Implementing a new rate structure model which balances permanent conservation (i.e., permanent lower consumption) and financial stability
- Initiating new rebate or direct install programs
- Requiring the retrofit of existing homes when they are sold

When new structures are built, there are many opportunities for enhanced efficiency that are difficult to construct or require at a later date. These include:

- Specifying super-efficient fixtures
- Requiring the inclusion of water circulating pumps that minimize water waste associated with hot water start ups
- Mandating the elimination of front lawns
- Requiring greywater to be captured, filtered, and reused for nonpotable indoor uses like toilets and laundry
- Requiring the installation of complete greywater systems that make water available for landscapes
- Directing that all new development must be “Net Zero” in which the developer would need to improve existing homes and businesses in order to “free up” the water required for a new development

All of the above conservation concepts are based on physical changes to buildings or landscapes. Another opportunity for expanding water conservation is to require behavior changes, like irrigation scheduling, on a permanent basis. This approach would reduce water consumption on an ongoing basis – but would limit the City’s ability to respond to droughts and other shortages when extra efforts are required.

Report Conclusions

The following conclusions are supported by the data compiled in this report.

- Moving forward, the cost of producing water will be greater than anticipated in the 2011 Rate Study.
- Morgan Hill community's water stewardship has significantly reduced consumption.

- City's current rate structure does not adequately balance short term and long term financial/environmental sustainability.
- Reducing water consumption by 30% will be required in 2015.
- New comprehensive water rate study should commence immediately.
- Investment in water recycling should be evaluated by Council.

Next Steps

The team is ready to implement the next step in the overall water operation planning process, including drought planning, at the direction of the Council.

The following table provides the Council a suggested schedule to consider as the Council looks to implement the 2015 priorities, goals and strategies as adopted by the Council.

	April 2015	May 2015	June 2015	July 2015	Aug 2015	Sept 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016
Council Meeting: Present Drought Policy Study	April 1									
Declaring a Level 2 Water Shortage	April 1									
Release RFP for Comprehensive Water Rate Study	April 8									
RFP for Water Rate Study Due to City	April 22									
Award Contract for Water Rate Study	May 6									
Council Workshop: Water Workshop		May 20								
Public Hearing for Water Ordinance Revisions		May 20								
Council Meeting: Council Receives Water Rate Study Report					August 5					
Council Meeting: Council Approves Prop 218 and Public Outreach Schedule <ul style="list-style-type: none"> • Launch Proposition 218 Process • Launch Public Engagement Process 						Sept 2				
Community Engagement Workshop/Notices Mailed to Ratepayers						Sept 18				
Water Rate Special Mailer - Water's New Normal							Oct 9			
Council/Community Engagement Workshop #2: Water's New Normal							Oct 21			
Public Hearing/Council Meeting to Consider Protest: <ul style="list-style-type: none"> • Conduct Public Hearing • Receive Proposition 218 Protest Letters • Approve Resolution Adopting Water Rate Increase Effective January 2016 								Nov 18		
Council Adopts Rate Resolution								Nov 18		
New Water Rates Effective										Jan 2016